

SEPTEMBER
1953

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Amateur Radio

JOURNAL OF
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WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK3WI: Sundays, 1100 hours EST, 7140 Kc. and 2000 hours EST 90 and 144 Mc. No frequency checks available from VK3WI. Intrastate working frequency, 7135 Kc.

VK3WI: Sundays, 1130 hours EST, simultaneously on 3575 and 7140 Kc., 51.016 and 146.25 Mc. Intrastate working frequency 7135 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI: Sundays, 0900 hours EST, simultaneously on 3560 and 14342 Kc. 3560 Kc. channel is used from 0915 hours to 1015 hours each Sunday for the W.L.A. Country hook-up. No frequency checks available.

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VK6WI: Sundays, 0930 hours WAST, on 7140 Kc. No frequency checks available.

VK1WI: Sundays, at 1000 hours EST, on 7140 Kc. and 146.5 Mc. No frequency checks are available.

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EDITORIAL



LET'S REJOICE WITH OUR EDITOR

As the heading indicates, our Editor has cause for rejoicing—"restored health." We, who have always enjoyed good health, do not realise the full value of this gift of nature.

Behind the scenes the work involved in the production of a magazine on a voluntary basis makes great demands upon the otherwise leisure hours of all the people concerned, particularly the Editor.

"Amateur Radio" has always been produced under such circumstances and for some years, in spite of physical disability and suffering, Tom Hogan, VK3HX, has carried on doing a noble job.

It is with sincere pleasure we are able to announce that, thanks to a miracle of medical science, Tom will soon be able to walk upright and enjoy health such as he has not done for years.

We hope that Tom will be able to continue his work with the magazine for a long time yet and feel sure that every member will want to join with us in rejoicing with Tom in his new found health and in thanking him once more for his untiring efforts in editing this, "our" magazine.

FEDERAL EXECUTIVE.

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THE V.F.O. AT VK3WI

BY J. C. DUNCAN,* VK3VZ

A few years ago the writer was given the job of building the v.f.o. for VK3WI, and since it has been installed, quite a few requests have been received for details of the unit.

The stability of the v.f.o. has been well tested, it being used for the Accurate Frequency Transmissions since its installation. Drift during one minute key down periods has been measured by the Frequency Measuring Centre, and averages about 5 cycles, which is quite adequate for Amateur purposes.

In the interests of economy it was decided to utilise one of the Command Transmitters, and this disposals unit is compact enough to stand on the operating table without taking a great deal of room.

REQUIREMENTS

The general electrical requirements were:—

1. Output on the 3.5 Mc. band with sufficient output to drive an 807 through a co-ax cable.
2. Stability, such that tuning of following circuits in the transmitter would not be reflected back and cause detuning of the oscillator frequency—in other words, good isolation. This latter point incidentally being a very common fault in v.f.o's.

* Technical Editor, 23 Parkside Avenue, Balwyn, Victoria.

3. Provision for either v.f.o. or crystal controlled output, for spot frequency operation.

4. Netting switch, to enable either the v.f.o. or crystal notes to be picked up on the receiver dial. Having the crystal note available is very handy at VK3WI when setting the receiver on the Net frequency after the broadcast.

5. The best stability and freedom from drift we could get.

6. Good bandwidth on the 7 and 14 Mc. bands, and also full coverage on the 3.5 and 28 Mc. bands, with direct calibration on the dial for all bands.

7. A means of checking the accuracy of the dial calibrations at any time.

The final unit as evolved covered all these points quite satisfactorily and has given trouble-free service since its installation.

To see how the Command Transmitter was altered it is necessary to study the circuit diagram of the altered unit **Fig. 1**, and a circuit of the original transmitter, **Fig. 2**.

To help in the description we will deal with our specification in the order shown.

OUTPUT

(1) As only sufficient r.f. was required to drive a single 807, it was obvious that two 1625s would not be

required, therefore one of the parallel output tubes was removed, this provided us with a spare.

With the removal of one tube, it was found that the neutralising condenser was no longer necessary, so this was removed. The socket was broken out and an amphenol socket soldered in its place, to provide a place for the isolator.

As output was required on 3.5 Mc., the Command Transmitter BC457 was chosen (4—5.3 Mc.). This transmitter does not cover the 3.5 Mc. band as designed, but with suitable parallel capacities this was achieved. The other reason was one of bandwidth, which will be discussed later.

ISOLATION

(2) Preventing the tuning of following circuits from affecting the tuning of the oscillator proved to be a problem, and was only overcome by removing the original 1626 triode oscillator, substituting a 12SK7, electron coupled oscillator, and inserting another 12SK7 as an isolator. With loose coupling to the co-ax line feeding the transmitter, the problem was solved.

V.F.O. OR CRYSTAL

(3) Provision for either v.f.o. or crystal operation was not difficult as the hardest part here was the physical one of finding a place to put the extra tube required, and also the crystal sockets. A 6C4 was used, with a 40

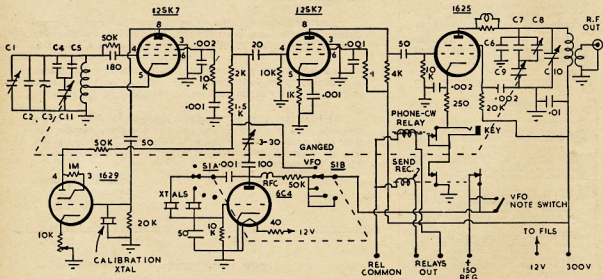


Fig. 1.

- C1, C10—Main trimmers (existing).
 C2—100 pF. N.P.O. (Ducon) ceramicon or silver mica.
 C3—Existing negative coefficient.
 C4—150 pF. silver mica or N.P.O. ceramicon (Ducon).

- C5—20 pF. N750 ceramicon (Ducon)
 70 pF. mica (use high voltage type if 1625 is modulated).
 C7—150 pF. N.P.O. ceramicon or silver mica.
 C8—3/30 pF. air trimmer (Phillips).
 C9, C11—Main ganged tuning.

Note.—Slight change in value of C5 may be necessary to enable oscillator to

hit 3.5 Mc. in the range of the inductance slug. Alternatively, a 3/30 pF. air trimmer can be used here.

For maximum r.f. output: (1) Adjust C10 at 3.8 Mc.; (2) Adjust 1625 inductance slug at 3.85 Mc.; (3) Adjust C8 at 3.5 Mc. Repeat above sequence of adjustments several times.

ohm resistor connected in series with the filament to allow 12 volt operation. The circuit is a Pierce, with the series plate resistor kept as large as possible consistent with reliable operation. This reduces crystal current and cuts down drift. Also, the output from the crystal oscillator is greater than the variable oscillator, and the 3-30 pF. variable trimmer is used to set the output from the unit to the same level. This avoids complications and retuning in the transmitter when switching from crystal to v.f.o.

The five position switch, S1a and S1b, on the front panel gives four positions for crystal spot frequencies and brings in the v.f.o. on the fifth position.

A 522 crystal socket panel mounted on pillars took care of the crystal socket position, and was salvaged from a 522 disposals unit.

A shield was mounted behind the crystal sockets to stop a slight feedback between the crystal holders and the output coil of the 1625, which are adjacent, and to prevent shocks when changing crystals.

It will be noted that when the unit is on crystal, the main tuning condenser C9 in the plate circuit of the 1625 output stage is still in circuit, and this stage is operating as a buffer, therefore it is necessary to set the tuning dial to the approximate frequency of the crystal in use for best output.

In practice it was found that if the dial was set within about 50 Kc. of the correct frequency it was quite adequate.

The B plus supply for the oscillators comes from a VR150/30, being fed via one pair of contacts on the send-receive relay. Paralleled across the contacts is the Netting Switch (4).

To obtain space for the crystals, oscillator, and switch, the output loading coil was removed, a new aluminium front panel fitted over the old one, and a miniature chassis made up for the 6C5.

STABILITY

(5) Stability and freedom from drift. In the original circuit one side of the filament to the oscillator was taken back through the cathode tap, and the other side of the filament through a coil interwound at the bottom end of the grid coil. It was found that a roughness in the note was due to this connection, and in spite of a change in the connections to the coil it still persisted, therefore the conventional circuit was reverted to.

With the change in the drive to the 1625, coil "C" was no longer necessary, and was removed from the inside of the variable oscillator coil. If it is considered too much trouble to remove it, it could be left and a short placed across the terminals to avoid any chance of resonance.

Temperature compensation of the oscillator proved to be no trouble as the existing negative coefficient condenser, C3 in Fig. 1, located in the oscillator coil compartment, had the correct value as later tests showed.

If you are not so lucky, temperature compensation is not a difficult job to accomplish, the main requirement being patience.

With the oscillator set so that we have maximum opening of the magic eye tube, which will be described later, and a crystal plugged into the check

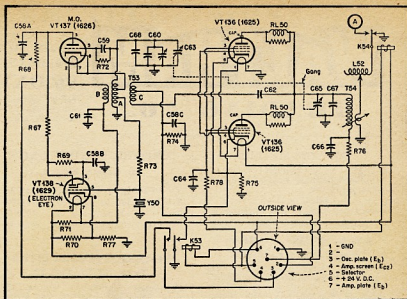


Fig. 2.—Circuit of the unmodified Command Unit. The following parts are identified:

- C58A, C58B, C58C—0.05 uF.
- C59—0.00018 uF.
- C60—Master oscillator padding.
- C61—0.006 uF.
- C62—Fixed neutralising.
- C63—Master oscillator tuning.
- C64—0.002 uF.
- C65—Power amplifier tuning.
- C66—0.01 uF.
- C67—Power amplifier padding.
- C68—3 pF.
- C69—50 pF.
- K53—Transmitter selector relay.
- K54—Transmitter output relay.
- L52—Antenna loading coil.
- R67, R72, R75—51,000 ohms.
- R68, R76—20 ohms.
- R69—1 megohm.
- R70—1,000 ohms.
- R71—126 ohms.
- R73, R74—15,000 ohms.
- R77—390 ohms.
- R78—51 ohms.
- RL50—Parasitic suppressors.
- T53—Oscillator coils.
- T54—Amplifier coils.
- Y50—Crystal unit.
- 7-prong female plug, outside view.

circuit, which is in the approximate centre of the band, leave the oscillator running for about an hour. If the eye has closed, carefully retune for maximum eye opening, noting whether the capacity of the tuning condenser went further in, or out of mesh. If a decrease in capacity is noted, the usual case, a greater value of negative coefficient is required in the circuit; whilst if the capacity of the oscillator condenser has to be increased, the circuit is over compensated.

The condenser to use is a Ducon ceramic condenser, marked N750, which indicates a negative coefficient, and a decrease in capacity with rising temperatures. They also have a green dot on one end. The zero coefficient condensers in the same brand are marked with a black dot and also N.P.O., so use the right type.

A few hours spent in temperature compensating will make a vast difference to any oscillator, but one final word of warning. As the condensers are sensitive to temperature changes, don't try and make checks just after they have been soldered into the circuit, heat transferred through the pigtail leads will upset the apple cart.

Finally on the subject of stability we come to voltage stability. As the writer pointed out in his original article on a v.f.o. in August, 1947, "Amateur Radio," it is possible by suitably positioning the cathode tap to make the electron coupled

oscillator immune from voltage changes of up to 100 volts change, in the range of 100 to 200 volts. Briefly, the method is as follows:—

Insert a resistor of about 15,000-20,000 ohms in series with the B supply to the oscillator, feeding both screen and plate, and wire a switch across it. Close the switch, shorting the resistor. Now tune in the note on the receiver and zero beat with the b.f.o. Open the switch and then carefully retune the receiver to zero beat, noting whether the v.f.o. had gone higher or lower in frequency, with the drop in plate and screen voltage. If the oscillator has decreased in frequency, the cathode tap is too low on the coil; and conversely, if the frequency increased, the cathode tap is too high. This test should be made of course with the VR150 regulator removed. In the case of the Command Unit the tap was found to be about optimum so was not altered.

BANDSPREAD

(6) The requirements of good bandspread on 3.5 and 28 Mc., and also on 7-7.15 and 14-14.350 Mc., was quite a tough one, because with a fundamental of 3.5 Mc., the portion of the scale required for 7-7.15 Mc. was only 3.5 to 3.575 Mc., or putting it another way, 75 Kc. in a total scale length of 300 Kc., whilst the position for 14 Mc. wasn't much better. We had one advantage,

(Continued on Page 9)

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Suitable for loads up to 100 watts. Radio interference suppressed. Suitable for use in conjunction with Radios, Portable Amplifiers, or Tape Recorders. In strong metal case.

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* Five core wire, cambric covered, 17/478 conducted 3 amp., approx. 60 yard reel 25/-

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* Don 3 Telephone Wire, single insulated, for use with Army Field Telephones. Mile Reel £6/10/-

* Low Tension Aircraft Cable, approx. 60 amp. 100 yd. reel £3/10/-

* Seven core Wire, rubber insulated, 100 yard reel 23/10/-

Postage and Packing: 6/-. Interstate 8/6.

* Belden single core, braided and shielded, 15 strands of approx. 32 gauge. Ideal for Microphone lead. 250 feet coil 45/-

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TRANSMITTER-RECEIVER

Type RT-34/APS-13

Frequency Modulated, approx. 450 megacycles. Valve line-up nine 6AG5, two 2D21, five 6J6, one VR105. Also contains Dynamotor, input 27v. 1.5 amp., output 285v. 60 Ma. £17/10/-

RECEIVERS

Type 301A. Containing two 954, two 955, five 6AC7, one 6H6, one 879, one 5V4 and 24v. Switching Motor. Brand new £10

HAND GENERATORS

Gibson Girl hand crank Generators. Output: high voltage 250v. 100 Ma. low voltage 6-8v. 2 amp. Ideal for conversion power supply for portable Transmitter £4/10/-

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TRANSMITTERS

Type TR3548

Containing Valves: one Rectifier VU11, one EF50, one 10 Cm. Westinghouse Magnetron valve complete with magnet, one Crystal Diode type IN21, one Blower Motor 24v. Brand new £5/19/6

H.F. TRANSMITTERS

Type G09

V.F.O. control. Has two 807 valves, one 801 and final stage 803. Frequency 3-18.1 Mc. on H.F., L.F. 300-600 Kc. All switches and condensers, coils and valve sockets are mounted in porcelain. All controls can be locked. Two R.F. output meters 9 amp., two 0-100 Ma. meters, one 0-300 Ma. meter, one 15 volt meter, and one 0.15 Ma. meter. Power supply has one 523 and two 1616 valves. Unit Relay control £25

★ VALVES ★

"JUST IN"

BRAND NEW IN CARTONS

1H6	7/6	6L7	12/6
1K5	10/6	807	25/-
1K7	10/6	830B	60/-
2A3	15/-	954	7/11
6AC7	15/-	955	7/11
6B8	15/-	12A6	12/6
6F6	12/6	12S37	12/6
6K6G	12/6	2050	22/6
6K7	10/6	2051	22/6
6K7G	10/6	VR150/30	22/6
6K8	12/6		

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Low Impedance 500 Ohms 12/6

High Impedance 2000 Ohms 25/-

Postage and Packing: 3/6. Interstate 4/-

RADAR TRANSCIVER and

INDICATOR UNIT

approx. 180 Meg. V.H.F.

Valve line-up in Transceiver Type 1045: two RL18, one RL37, one GL 2050 (Thyratron), one VR135, six EF50, two VR150/30 (Voltage Reg.), one 5V4, one 6SN7, one 884 (Gas Triode), one EA50, two RL18. Unit contains a motor driven Selector Switch and two Polystyrene 6 position rotary coil turret and an I.F. transformer strip ideally suitable for use with television. Valve line-up in Indicator Unit Type 1047: seven EF50, one 897, one VR54. Also contains 3000 type Relay, 2000 ohms, 10 assorted potentiometers and two bank ceramic wafer switch and an illuminated scale. (5BP1 tube and shield not included). These two units are brand new and packed together in their original cases.

Price-£21/10/- the two.

Transceiver £15, Indicator Unit £7/10/6 (if supplied separately)

COMMAND RECEIVER

CONTROLS Type BC450

Three slow motion Dials, six single pole double throw Switches, four miniature Jacks, three Volume Controls (approx. 5,000 ohms), £1/15/-

Postage and Packing: 6/-. Interstate 10/6.

AMATEUR TELEVISION

PART THREE—SYNCHRONISING SIGNAL GENERATOR

BY E. CORNELIUS,* VK6EC

The synchronising signal generator is used to time accurately the firing instants of the time bases of both the Flying Spot Scanner and Receiver. It also provides signals for blanking the retrace of the spot in the receiver. Four signals are taken from it, at low impedance, by co-axial cables. Two go to the Flying Spot Scanner, and two to the Video Mixer.

The Flying Spot Scanner requires:—

1. A line frequency driving pulse (positive going) at 5,250 p.p.s.
2. A frame frequency driving pulse (positive going) at 25 p.p.s.

The Video Mixer requires:—

1. A composite sync. pulse train (negative going) made up of both sync. pulses.
2. A composite blanking pulse train (positive going) made up of both blanking pulses.

Its circuitry is designed to provide as follows:—

- (a) A line sync. pulse of duration of 10 μ sec, at 5,250 p.p.s.
- (b) A line blanking pulse of duration 20 μ sec, at 5,250 p.p.s. commencing 5 μ sec. in advance of the sync. pulse.
- (c) A frequency divider chain of ratio 5,250/25, i.e. 210/1.
- (d) A frame sync. pulse of duration 1 msec. at 25 p.p.s.
- (e) A frame blanking pulse of duration 2 msec. commencing 500 μ sec. in advance of the sync. pulse, at 25 p.p.s.
- (f) A sync. mixer to combine the two blanking pulses in the same polarity, and of the same amplitude.
- (g) A blanking mixer to combine the two blanking pulses in the same polarity, and of the same amplitude.
- (h) Cathode follower output stages to feed low impedance lines to the other units.

The sync. generator is quite complex, but while it could be simplified considerably, it was found that simplification usually caused some deterioration in performance.

The simplest sync. generator would consist of two free-running time bases, at line and frame rate, feeding both flying spot scanner and receiver, but to fulfil rules 2 and 3 laid down in Part 1 of this series, this unit was developed. Those features causing complexity are the frequency divider chain, and the delay circuits, to provide a "porch" between blanking and sync. pulses. This porch is a means whereby false operation of the receiver time bases, by picture content, can be prevented.

Five types of circuit, not in common use in radio, are used, and will be described briefly first. These are:—

1. The triggered multivibrator or flip-flop.
2. The step counter.
3. Clippers, limiters, or slicers.
4. Differentiating networks.
5. Cathode followers.

Triggered Multivibrator

This consists of a multivibrator with only one coupling provided, so that it has one stable state, and one unstable. When triggered by a signal, it "flips" to the unstable state, and after a period determined by the circuit constants, it "flops" back to the normal rest state, until triggered again. Its output is a pulse, commencing at the triggering point, and of duration variable at will.

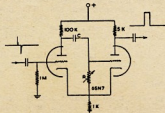


FIG. 8—FLIP-FLOP OR TRIGGER MULTIVIBRATOR

One circuit is as Fig. 8, and another in the multivibrator portion of the step counter shown in Fig. 9. The Fig. 8 circuit is used in the sync. and blanking pulse generators, and the delay flip-flops. Representative component values are shown, with R and C controlling the pulse length from a value around 1 μ sec. and longer.

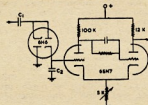


FIG. 9—STEP COUNTER

The Step Counter

The circuit shown in Fig. 9 is a step counter, for frequency division, the cathode resistance R controlling the counting rate (the number of incoming pulses accepted before the trigger multivibrator fires). It can be adjusted to count up to about 15 pulses before firing, and its output is a pulse suitable for the operation of another step counter. In the sync. generator, three counters are used—5:1, 6:1, and 7:1.

As the counting rate depends on the charge on the capacitor C2, the count will be proportional to the amplitude of the input pulses. Similarly, to control accurately the waveform and duration of all pulses, regulated high tension is essential. Positive 105 volts regulated supplies all circuits in the generator.

Clippers, Limiters or Slicers

The pulses from the multivibrators are invariably somewhat distorted from the ideal square wave form, and double slicers are used to correct their shape. See Fig. 10 (a) and (b).

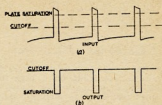


FIG. 10—EFFECT OF CLIPPING

6SH7 tubes are ideal for this purpose, their short grid base accepting only the centre portion of the pulse, as shown by the dotted lines in Fig. 10 (a). This is readily arranged by the selection of optimum grid bias, and plate and screen voltages. Low plate and screen voltages allow early plate current saturation, and a high bias normally has the tube cut off.

For positive going pulses, grid leak bias is used, keeping the tube cut off between pulses. For negative going pulses, bias is low, and plate current near saturation. The pulse drives the tube to cut off, and holds it there till the trailing edge of the pulse allows the plate current to rise to saturation again.

Differentiating Networks

To fire the flip-flops, and trigger the step counters, the leading edge of each pulse is taken as the reference point in time. Also, it is essential that the duration of the firing pulse should have no effect after the leading edge has passed. The differentiating circuit in Fig. 11 converts a substantially square pulse into positive and negative going pips of very short duration, and corresponding in time to the changes in direction, the leading and trailing edges of the pulse.

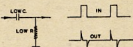


FIG. 11—DIFFERENTIATION

There is substantially no output between pips, and it is usually arranged that the positive pip fires the trigger, the negative being ignored. The CR time constant is such that it is much less than the pulse duration.

Cathode Follower

The cathode follower circuit shown in Fig. 12 consists in essentials of an amplifier with its load in the cathode circuit, instead of the plate. It has two main advantages in this work:—

1. High impedance input.
2. Low impedance output.

The input capacitance of a triode is effectively—

$C(\text{stray}) + C_{gk} + C_{gp} (1 + A)$
where A is the stage amplification.



FIG12-CATHODE FOLLOWER

The last term can be considerable, and its shunting effect on a high impedance input circuit carrying pulses of very short rise time can modify a pulse of the form shown in Fig. 13 (a) to that shown in Fig. 13 (b).

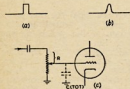


FIG 13-EFFECT OF SHUNT CAPACITANCE

In the cathode follower, the input capacitance is effectively—

$$C(\text{stray}) + C(\text{in})$$

and the shunt capacitance effect is considerably reduced.

In a circuit of the form shown in Fig. 13 (c), unless a cathode follower is used to follow it, R (that part of the potentiometer in series with the grid input) and C(tot), form an integrating circuit, and can completely distort a pulse, or sawtooth of high frequency, except when the potentiometer is in the full gain position.

To feed a low impedance line, the cathode follower is invaluable, its output impedance being 1/Gm in parallel with the cathode resistor. By suitable choice of tube and Rk, the output impedance can be reduced to the order of 100 ohms, when the reactance of the shunt capacitances of the connecting cable and terminating cable, are negligible. Their effect on the wave shape will then be minimised. When it is considered that the time of rise of some pulses, from zero to full value, is less than 1 usec., we must consider harmonic components up to about 10 Mc.

Shunt capacitance can so alter the shape of pulses, that their leading edge is very ill defined (note Fig. 13 (b)), and useless for accurate timing. Cathode followers are therefore used in all circuits carrying high video frequencies, or short rise time pulses, when feeding cables more than a few inches in length.

THE SYNC. GENERATOR

Fig. 14 shows a circuit of the sync. signal generator. Oscillograms of the waveforms are shown in the drawing, and are referred to in this description of circuit operation by number, e.g. (1).

An RC oscillator (6SH7) gives an approximation to a sine wave output (1) at 5,250 c.p.s., with the frequency adjustable over a narrow range, such that its 105th sub-harmonic can be synchronised with the 50 cycle mains. The out-

put is limited to an approximately square waveform (2) by a 6SH7, and differentiated (3) to give primary timing pulses of short duration. The positive going pip is used, the negative being clipped (4) by a 6SH7.

This pip fires the line blanking flip-flop (6SN7) and the delay (porch) flip-flop (6SN7) simultaneously. The blanking flip-flop is adjusted to give a positive going pulse (5) of 20 usec. duration, which is clipped (6) by a 6SH7, and fed to the blanking mixer.

The delay flip-flop is adjusted to give a positive pulse of 5 usec. duration (7) which is differentiated (8). The positive pip (coinciding with the leading edge of the blanking pulse) is clipped (9) by half a 6SN7, and the negative, 5 usec. later, is inverted (10) by the other half of the 6SN7 and used to fire the sync. multivibrator. Thus the sync. pulse commences 5 usec. after the blanking pulse.

The sync. multivibrator, a 6SN7, gives a positive pulse (11) of 10 usec. duration and this is—

- (a) Clipped (12) by a 6SH7 and fed to the sync. mixer;
- (b) Fed to a cathode follower-clipper, which provides positive pulses (13) for the line time base of the flying spot scanner.

The output of the RC oscillator is also fed to another limiter, a 6SJ7, whose square wave output (14) feeds the first step counter of 5:1 ratio. This counter gives an output pulse (16) for every five (15) incoming, and uses a 6H6 and 6SN7, as do the other two counters. Its output is fed to the second counter (17) (18) of 6:1 ratio, which feeds the third of 7:1 ratio (19) (20). The output of this, at 25 p.p.s., is taken from the cathode, differentiated (21) and the positive going pip fires the frame blanking multivibrator (6SN7) and frame sync. or porch, multivibrator, also a 6SN7, simultaneously.

The frame blanking pulse (22) is clipped by a 6SH7 (23) and fed to the blanking mixer. The pulse duration is 2 msec. In the blanking mixer (6SH7) both blanking pulses are fed in through isolating 100,000 ohm resistors to the grid and the limited output is a combined line and frame blanking waveform (24) (25). As the video mixer requires a positive going blanking input, a cathode follower serves both to retain the polarity and to provide a low impedance source for the 75 ohm line (26) (27).

The frame sync. pulse delay multivibrator, a 6SN7, gives a pulse of 500 usec. duration, negative going, at its cathode (28). After differentiation (29), its trailing edge gives a positive going pip, to fire the frame sync. multivibrator, 500 usec. after the frame blanking pulse commences. The sync. pulse has a duration of 1 msec. (30) which is—

- (a) Clipped (31) by a 6SH7 and fed to the sync. mixer;
- (b) Fed to a cathode follower-clipper (6J5) which provides positive pulses (32) at low impedance, for the flying spot scanner frame time base.

The sync. mixer is a 6SH7, which, similarly to the blanking mixer, provides a composite synchronising signal. It also acts as a limiter, and a negative going waveform is taken from the cathode (33) (34) for use in the video mixer, for superimposition on the blanked video waveform.

This synchronising signal generator has proved highly stable in operation, and after initial line-up, has needed little attention.

LINE-UP PROCEDURE

The method of adjustment was as follows:—

1. Using an accurate audio signal generator, and a cathode ray oscillograph as display mechanism, the RC oscillator was adjusted to 5,250 c.p.s.
2. With the oscillograph observing the waveforms on the trigger multivibrator grids of the step counters (15) (17) (19), each is adjusted to its correct count, by means of the multivibrator cathode potentiometers.
3. The final frequency, approximately 25 p.p.s. is then compared with the mains, and the RC oscillator frequency adjusted so that an exact 25:50 c.p.s. ratio is obtained.
4. The line blanking pulse waveform is displayed on the c.r.o. to show at least two pulses, and the distance between the leading edges adjusted to 4". One pulse is centred, and the pulse width adjusted to 0.4", corresponding to 20 usec. (one-tenth the line period).
5. The line sync. pulse is adjusted similarly to 10 usec. duration.
6. The frame sync. pulse is adjusted to 1 msec., 2½% of the frame period.
7. The frame blanking pulse is adjusted to 2 msec., 5% of the frame period.
8. By means of a temporary mixing circuit, similar to the blanking and sync. mixers, the line blanking and sync. pulses are superimposed. See Fig. 15 (a) (b) (c).

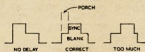


FIG 15-PORCH ADJUSTMENT

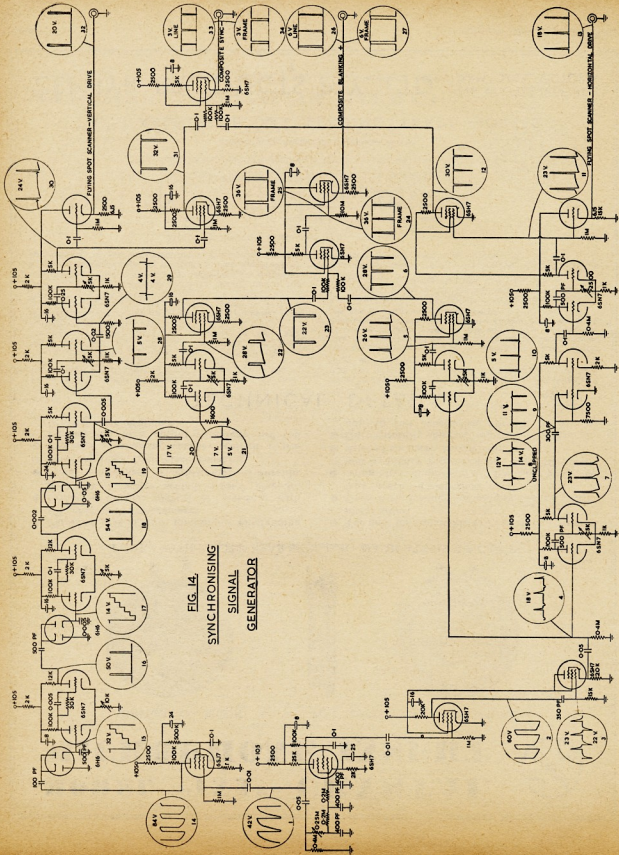
The delay flip-flop pulse duration is then adjusted so that the line sync. pulse commences 5 usec. later than the blanking pulse.

9. Using the same circuit, the frame sync. and blanking pulses are superimposed, and the frame "porch" adjusted to 500 usec.

POWER SUPPLY

This provides 105 volts regulated at 75 Ma., and 6.3 volts a.c. at 12 amps. for the numerous heaters.

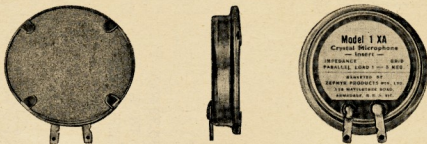
(To be continued)



MODEL "1XA" CRYSTAL MICROPHONE INSERT



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FITTED WITH PLATED REAR SHIELD TO ELIMINATE HUM PICK-UP

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- Aluminium diaphragm mechanically protected and frequency controlled by "Zephyrfil" filter.
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TECHNICAL DETAILS

Rochelle salt crystal microphones are perhaps the most widely used for all types of service where quality speech and music reproduction at high output levels is a requirement. They are dependable in performance and when fitted with the appropriate "Zephyrfil" filter, their frequency response may be adjusted to suit any application or requirement.

This crystal microphone requires to be terminated with a high value parallel load of the order of 1 to 5 megohms for best results.

The mass of the moving parts is small, hence the sensitivity is high and a high efficiency is achieved. Light gauge solder lugs are provided so that excessive heat in soldering will not be transmitted to the crystal element.

When mounted in a microphone cage, it is recommended that the insert be suspended in rubber, to eliminate shock and vibration.

One of the connecting lugs is directly connected to the case and care should be taken to solder the metal shield of the microphone cable to this solder lug, keeping the unscreened portion of the centre conductor as short as possible to eliminate hum pick-up.

All crystal elements are mounted on high grade suspension pillars being fixed thereto with a good quality cement, thus ensuring stability and long life.

Case $1\frac{1}{4}$ " diameter (rear), $\frac{3}{8}$ " thickness, 1-13/16" overall diameter (front) with filter fitted.

Frequency Response = 60-6,500 c.p.s.
Output Level = -45 db (0 db = 1 volt/dyne/cm²)
Impedance = Model 1XA Grid 1 — 5 megohms.



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(Continued from Page 2)

however, the gearing on the dial was such that we had about 300 degrees in which to place the scale as against the usual 180 degrees for the normal dial.

To have two lots of oscillator coils or condensers and a switching system would have been too complicated, and in addition, we didn't have the room, so we took the easy way out. By using the BC457 Unit, which originally covered 4-3.3 Mc., and connecting parallel capacity across the coil to bring it back to 3.8 Mc. with the main tuning condenser out of mesh, and then connecting additional capacities in series with this main tuning condenser to spread the calibrations out such that the 3.5 to 3.8 Mc. band covered the whole scale, the problem was beaten.

Due to the fact that we were connecting about 175 pF. as a padder in series with the tuning condenser of about 175 pF., the lower frequency end of the scale was spread considerably. We then end up with a dial in which the calibrations are deliberately made non-linear, and the maximum spread is at the low frequency end where we want it. This gives just under half of the total scale for 7 and 14 Mc.

The metal dial was removed and a piece of white celluloid marked with a pair of dividers to the same diameter as the original dial. A hole was drilled to take the centre boss and the small locating pin marked and drilled. An SBA screw was tapped into the locating pin hole so that the dial could not turn out of position. The celluloid was sanded with glass paper so that it would take ink when finally calibrated.

CHECKING CALIBRATION

(7) The system used to check the calibration of the original Unit was retained. Briefly, a small portion of the r.f. from the oscillator is fed to the grid of the electron eye tube, which has a crystal connected between grid and ground. The cathode resistor is adjusted and pre-set to give almost complete closing of the eye when the oscillator is away from the crystal frequency. At the crystal frequency the eye opens and a red line is drawn on the dial calibrations at this point.

To reset the calibrations the dial is set to the red line and the oscillator capacity adjusted through the small

covered hole in the top of the case for maximum opening of the eye.

In the original Unit the eye is viewed by means of a mirror on the hinged lid at the rear of the case. This was modified and the eye mounted to protrude through the front panel. By supplying the electron eye through the same h.t. connection as the variable oscillator, the eye only lights up when the v.f.o. is on, and therefore acts as a warning signal that the transmitter is on v.f.o. control.

Only several points in the circuit remain to be discussed. Firstly, the relay circuits. The relays are 24 volts d.c. jobs and are the type used in the original. A second one was salvaged from a wrecked unit in the junk box.

The send-receive relay is the lower one in the cathode lead to the 1625, and has two sets of contacts, the first set as mentioned previously cuts the h.t. to the oscillators and is shorted out by the netting switch, whilst the second set of contacts opens the 1625 cathode.

The Phone-C.W. relay uses only one set of contacts, which are open in the c.w. position. The cathode circuit is then closed via the key jack, and key.

Secondly, the plate condenser of the 1625 must be treated exactly like the oscillator so that they will track properly, and is therefore fitted with series condensers for this purpose.

FINAL ADJUSTMENT

The tuning dial is set to the high frequency end of the scale, condenser out of mesh, and with a receiver tuned to zero beat with a frequency meter set on 3.8 Mc., the oscillator trimmer (original condenser) is adjusted to bring the oscillator to 3.8 Mc.

With the receiver S meter and a small piece of wire on the output terminal of the Unit, the trimmer on the 1625 plate circuit is adjusted for best reading on the meter.

Next turn the v.f.o. main dial to in mesh, and set the frequency meter and receiver to 3.5 Mc. and adjust the slug on the oscillator to bring to 3.5 Mc. repeat the full process several times until the oscillator covers 3.5 to 3.8 Mc. exactly. Then with the receiver tuned to the output on 3.5 Mc., adjust the 3-30 pF. padder on the 1625 output circuit for maximum reading on the receiver S meter.

Finally check at 3.8 and 3.5 Mc. ends and touch up if necessary. At this stage check the temperature compensation as

set out previously and when you are finally satisfied, complete the dial calibrations.

The zero dial engraving was not suitable as the four bands were printed on the scale, so a small celluloid escutcheon was made up, with a hair line engraved in the celluloid, so that accurate readings could be made on all bands.

One final point, the socket on the rear of the Unit was removed and a male octal plug fitted, all power connections being taken from this point.

A co-ax connector handled the r.f. output side of things.

Well that's the story, and there is no reason why you can't duplicate this Unit, and end up with a nice compact v.f.o. to sit on your operating desk, one in which the quality of components and ruggedness are far above that usually available to us and for a lot less than it costs to build too, thanks to disposals.

— . . . —

TECHNOGRAPH PRINTED CIRCUITS

We have received a very interesting little book giving details of the development of printed circuits. This book traces the history of the circuits to their present state of development and gives many interesting applications to which they are ideally applicable.

For instance, in transformer construction spiral coils are printed on insulating paper, which are repeated many times on strips of paper hundreds of yards long. They are then folded and stacked, the centre punched out to slip over the iron core, and each spiral end spot welded to the next. In this fashion the transformer winding is built up.

In another case, when foil is used as a conductor in high frequency circuits due to "skin" effect, very thin foil will carry astonishingly high loading. Thus in freely radiating circuits, copper foil 0.001 inch thick and with a surface width of one-eighth inch, a loading of 10 amp. or more can be carried. Therefore instruments can be reduced in weight, and there will be a large saving in metal cost.

The above examples will serve to illustrate the interesting information contained in this small book; our copy being received from R. H. Cunningham Pty. Ltd., of 118 Wattletree Road, Armadale, who can supply all information.

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894-23	500	2, 3.7, 8, 12.5	2	50-10,000	5	Line to Voice Coil	26/3
900-22	2,500, 5,000	2, 3.7, 8, 12.5, 15	1	*40-15,000	15	Single 807, EL34, etc., to V.C.	57/6
896-9	8,000, 10,000	2, 3.7, 8, 12.5, 15	1	30-15,000	15	P.P. 6V6Gs, A or AB1 to V.C.	62/6
897-9	8,000, 10,000	100, 125, 166, 250, 500	1	30-15,000	15	P.P. 6V6Gs, A or AB1 to Line	62/6
763-9	3,000, 5,000	2, 3.7, 8, 12.5, 15	1	40-20,000	15	P.P. 2A3s, A or AB1 to V.C.	42/6
809-26	500	2, 3.7, 8, 12.5, 15	1	50-20,000	15	Line to Voice Coil	42/6
870-26	10,000	2 or 8	1	*20-20,000	**6	P.P. 6V6Gs or 807s as Triodes	57/6
871-9	10,000	2 or 8	1	*20-20,000	12	P.P. 6V6Gs or 807s as Triodes	81/-
872-9	10,000	3.7 or 15	1	*20-20,000	12	P.P. 6V6Gs or 807s as Triodes	81/-
891-22	6,600	83, 100, 125, 166, 250, 500	1	50-12,000	35	P.P. 807s, AB1 to Line	82/6
892-22	3,200	50, 62, 83, 125, 250, 500	1	50-12,000	55	P.P. 807s, AB2 to Line	97/-

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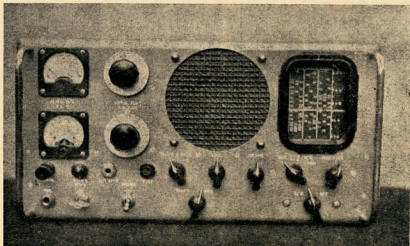
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FIFTY MEGACYCLES AND ABOVE

NEW SOUTH WALES

50 Mc.: A little activity has been noted on six this month VKs 2WJ, 2ABH, 2HE, 2XX, 2AJR, 2VW and 2JX in Sydney, and VKs 2BZ, 2ADT, 2AGY, 2RU and 2X in the north. The latter two are expected to have been heard. Major 2RU expects a break through to Interstate to take place this winter.

We are all pleased to note that duplex from 50 Mc. up is now allowed. This should provoke much activity on 50 Mc.

144 Mc.: A meeting of the V.H.F. Group was held at Science House on 3rd July, the roll-up being fairly good considering the extreme cold and wet night. General interest in mobile equipment, compared by Bob 2OA, took place. Two lectures were given by 2ANF and 2HL. John on mobile rx's and 2HL on antenna. Assisted by 2AJZ as draughtsman.

The discussion and lectures proved not only interesting, but very instructive. Dr. Bob Black gave the vote of thanks on behalf of the meeting.

John 2ANF received a nice trophy, won by him at the Autumn Field Day. Congrats John. A continuation of this discussion will take place next meeting, 7th August.

A contest was held on 14th and 15th July from 7 p.m. until 11 p.m. on Saturday and Sunday nights, and there was a fairly good response to the contest. Stations were 2ABH and one DX station, 2OT, of Hamilton, New-Castle, who was there both nights on 143.3 Mc. approx. The results of the contest were as follows: results issued, but we think 2LG and 2HD tied with 43 contacts. Full results next month.

We have to welcome a number of new stations onto 144 Mc. and are pleased to see them: on 2VC of Sylvania Heights, Alex 2ABE of Camptel, and Harold 2AWH of Belmont. Sydney with these chaps good hunting. New prospects for 144 Mc. are George 2GX of North Ryde, and 2ES of Crows Nest.

Arthur 2MJ of Sutherland is also a newcomer. 2AVK has been heard once or twice! Stan 2LY has threatened to come on two again. 2D has also returned! 2XX has gone a long way towards completing his new 12 x 18 ft. shack, we also hope Ted will build new gear to go with it!

We have been asked to print the mid-winter activity list, well here it is: Sydney—VKs 2AFO, 2WJ, 2ABH, 2AG, 2CZ, 2DZ, 2EJ, 2FJ, 2GJ, 2HJ, 2I, 2J, 2K, 2L, 2M, 2N, 2O, 2P, 2Q, 2R, 2S, 2T, 2U, 2V, 2W, 2X, 2Y, 2Z, 2AA, 2AB, 2AC, 2AD, 2AE, 2AF, 2AG, 2AH, 2AI, 2AJ, 2AK, 2AL, 2AM, 2AN, 2AO, 2AP, 2AQ, 2AR, 2AS, 2AT, 2AU, 2AV, 2AW, 2AX, 2AY, 2AZ, 2BA, 2BB, 2BC, 2BD, 2BE, 2BF, 2BG, 2BH, 2BI, 2BJ, 2BK, 2BL, 2BM, 2BN, 2BO, 2BP, 2BQ, 2BR, 2BS, 2BT, 2BU, 2BV, 2BW, 2BX, 2BY, 2BZ, 2CA, 2CB, 2CC, 2CD, 2CE, 2CF, 2CG, 2CH, 2CI, 2CJ, 2CK, 2CL, 2CM, 2CN, 2CO, 2CP, 2CQ, 2CR, 2CS, 2CT, 2CU, 2CV, 2CW, 2CX, 2CY, 2CZ, 2DA, 2DB, 2DC, 2DD, 2DE, 2DF, 2DG, 2DH, 2DI, 2DJ, 2DK, 2DL, 2DM, 2DN, 2DO, 2DP, 2DQ, 2DR, 2DS, 2DT, 2DU, 2DV, 2DW, 2DX, 2DY, 2DZ, 2EA, 2EB, 2EC, 2ED, 2EE, 2EF, 2EG, 2EH, 2EI, 2EJ, 2EK, 2EL, 2EM, 2EN, 2EO, 2EP, 2EQ, 2ER, 2ES, 2ET, 2EU, 2EV, 2EW, 2EX, 2EY, 2EZ, 2FA, 2FB, 2FC, 2FD, 2FE, 2FF, 2FG, 2FH, 2FI, 2FJ, 2FK, 2FL, 2FM, 2FN, 2FO, 2FP, 2FQ, 2FR, 2FS, 2FT, 2FU, 2FV, 2FW, 2FX, 2FY, 2FZ, 2GA, 2GB, 2GC, 2GD, 2GE, 2GF, 2GG, 2GH, 2GI, 2GJ, 2GK, 2GL, 2GM, 2GN, 2GO, 2GP, 2GQ, 2GR, 2GS, 2GT, 2GU, 2GV, 2GW, 2GX, 2GY, 2GZ, 2HA, 2HB, 2HC, 2HD, 2HE, 2HF, 2HG, 2HH, 2HI, 2HJ, 2HK, 2HL, 2HM, 2HN, 2HO, 2HP, 2HQ, 2HR, 2HS, 2HT, 2HU, 2HV, 2HW, 2HX, 2HY, 2HZ, 2IA, 2IB, 2IC, 2ID, 2IE, 2IF, 2IG, 2IH, 2II, 2IJ, 2IK, 2IL, 2IM, 2IN, 2IO, 2IP, 2IQ, 2IR, 2IS, 2IT, 2IU, 2IV, 2IW, 2IX, 2IY, 2IZ, 2JA, 2JB, 2JC, 2JD, 2JE, 2JF, 2JG, 2JH, 2JI, 2JJ, 2JK, 2JL, 2JM, 2JN, 2JO, 2JP, 2JQ, 2JR, 2JS, 2JT, 2JU, 2JV, 2JW, 2JX, 2JY, 2JZ, 2KA, 2KB, 2KC, 2KD, 2KE, 2KF, 2KG, 2KH, 2KI, 2KJ, 2KK, 2KL, 2KM, 2KN, 2KO, 2KP, 2KQ, 2KR, 2KS, 2KT, 2KU, 2KV, 2KW, 2KX, 2KY, 2KZ, 2LA, 2LB, 2LC, 2LD, 2LE, 2LF, 2LG, 2LH, 2LI, 2LJ, 2LK, 2LL, 2LM, 2LN, 2LO, 2LP, 2LQ, 2LR, 2LS, 2LT, 2LU, 2LV, 2LW, 2LX, 2LY, 2LZ, 2MA, 2MB, 2MC, 2MD, 2ME, 2MF, 2MG, 2MH, 2MI, 2MJ, 2MK, 2ML, 2MM, 2MN, 2MO, 2MP, 2MQ, 2MR, 2MS, 2MT, 2MU, 2MV, 2MW, 2MX, 2MY, 2MZ, 2NA, 2NB, 2NC, 2ND, 2NE, 2NF, 2NG, 2NH, 2NI, 2NJ, 2NK, 2NL, 2NM, 2NO, 2NP, 2NQ, 2NR, 2NS, 2NT, 2NU, 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2VN, 2VO, 2VP, 2VQ, 2VR, 2VS, 2VT, 2VU, 2VV, 2VW, 2VX, 2VY, 2VZ, 2WA, 2WB, 2WC, 2WD, 2WE, 2WF, 2WG, 2WH, 2WI, 2WJ, 2WK, 2WL, 2WM, 2WN, 2WO, 2WP, 2WQ, 2WR, 2WS, 2WT, 2WU, 2WV, 2WW, 2WX, 2WY, 2WZ, 2XA, 2XB, 2XC, 2XD, 2XE, 2XF, 2XG, 2XH, 2XI, 2XJ, 2XK, 2XL, 2XM, 2XN, 2XO, 2XP, 2XQ, 2XR, 2XS, 2XT, 2XU, 2XV, 2XW, 2XX, 2XY, 2XZ, 2YA, 2YB, 2YC, 2YD, 2YE, 2YF, 2YG, 2YH, 2YI, 2YJ, 2YK, 2YL, 2YM, 2YN, 2YO, 2YP, 2YQ, 2YR, 2YS, 2YT, 2YU, 2YV, 2YW, 2YX, 2YY, 2YZ, 2ZA, 2ZB, 2ZC, 2ZD, 2ZE, 2ZF, 2ZG, 2ZH, 2ZI, 2ZJ, 2ZK, 2ZL, 2ZM, 2ZN, 2ZO, 2ZP, 2ZQ, 2ZR, 2ZS, 2ZT, 2ZU, 2ZV, 2ZW, 2ZX, 2ZY, 2ZZ, 2AA, 2AB, 2AC, 2AD, 2AE, 2AF, 2AG, 2AH, 2AI, 2AJ, 2AK, 2AL, 2AM, 2AN, 2AO, 2AP, 2AQ, 2AR, 2AS, 2AT, 2AU, 2AV, 2AW, 2AX, 2AY, 2AZ, 2BA, 2BB, 2BC, 2BD, 2BE, 2BF, 2BG, 2BH, 2BI, 2BJ, 2BK, 2BL, 2BM, 2BN, 2BO, 2BP, 2BQ, 2BR, 2BS, 2BT, 2BU, 2BV, 2BW, 2BX, 2BY, 2BZ, 2CA, 2CB, 2CC, 2CD, 2CE, 2CF, 2CG, 2CH, 2CI, 2CJ, 2CK, 2CL, 2CM, 2CN, 2CO, 2CP, 2CQ, 2CR, 2CS, 2CT, 2CU, 2CV, 2CW, 2CX, 2CY, 2CZ, 2DA, 2DB, 2DC, 2DD, 2DE, 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2IA, 2IB, 2IC, 2ID, 2IE, 2IF, 2IG, 2IH, 2II, 2IJ, 2IK, 2IL, 2IM, 2IN, 2IO, 2IP, 2IQ, 2IR, 2IS, 2IT, 2IU, 2IV, 2IW, 2IX, 2IY, 2IZ, 2JA, 2JB, 2JC, 2JD, 2JE, 2JF, 2JG, 2JH, 2JI, 2JJ, 2JK, 2JL, 2JM, 2JN, 2JO, 2JP, 2JQ, 2JR, 2JS, 2JT, 2JU, 2JV, 2JW, 2JX, 2JY, 2JZ, 2KA, 2KB, 2KC, 2KD, 2KE, 2KF, 2KG, 2KH, 2KI, 2KJ, 2KK, 2KL, 2KM, 2KN, 2KO, 2KP, 2KQ, 2KR, 2KS, 2KT, 2KU, 2KV, 2KW, 2KX, 2KY, 2KZ, 2LA, 2LB, 2LC, 2LD, 2LE, 2LF, 2LG, 2LH, 2LI, 2LJ, 2LK, 2LL, 2LM, 2LN, 2LO, 2LP, 2LQ, 2LR, 2LS, 2LT, 2LU, 2LV, 2LW, 2LX, 2LY, 2LZ, 2MA, 2MB, 2MC, 2MD, 2ME, 2MF, 2MG, 2MH, 2MI, 2MJ, 2MK, 2ML, 2MM, 2MN, 2MO, 2MP, 2MQ, 2MR, 2MS, 2MT, 2MU, 2MV, 2MW, 2MX, 2MY, 2MZ, 2NA, 2NB, 2NC, 2ND, 2NE, 2NF, 2NG, 2NH, 2NI, 2NJ, 2NK, 2NL, 2NM, 2NO, 2NP, 2NQ, 2NR, 2NS, 2NT, 2NU, 2NV, 2NW, 2NX, 2NY, 2NZ, 2OA, 2OB, 2OC, 2OD, 2OE, 2OF, 2OG, 2OH, 2OI, 2OJ, 2OK, 2OL, 2OM, 2ON, 2OO, 2OP, 2OQ, 2OR, 2OS, 2OT, 2OU, 2OV, 2OW, 2OX, 2OY, 2OZ, 2PA, 2PB, 2PC, 2PD, 2PE, 2PF, 2PG, 2PH, 2PI, 2PJ, 2PK, 2PL, 2PM, 2PN, 2PO, 2PP, 2PQ, 2PR, 2PS, 2PT, 2PU, 2PV, 2PW, 2PX, 2PY, 2PZ, 2QA, 2QB, 2QC, 2QD, 2QE, 2QF, 2QG, 2QH, 2QI, 2QJ, 2QK, 2QL, 2QM, 2QN, 2QO, 2QP, 2QQ, 2QR, 2QS, 2QT, 2QU, 2QV, 2QW, 2QX, 2QY, 2QZ, 2RA, 2RB, 2RC, 2RD, 2RE, 2RF, 2RG, 2RH, 2RI, 2RJ, 2RK, 2RL, 2RM, 2RN, 2RO, 2RP, 2RQ, 2RR, 2RS, 2RT, 2RU, 2RV, 2RW, 2RX, 2RY, 2RZ, 2SA, 2SB, 2SC, 2SD, 2SE, 2SF, 2SG, 2SH, 2SI, 2SJ, 2SK, 2SL, 2SM, 2SN, 2SO, 2SP, 2SQ, 2SR, 2SS, 2ST, 2SU, 2SV, 2SW, 2SX, 2SY, 2SZ, 2TA, 2TB, 2TC, 2TD, 2TE, 2TF, 2TG, 2TH, 2TI, 2TJ, 2TK, 2TL, 2TM, 2TN, 2TO, 2TP, 2TQ, 2TR, 2TS, 2TT, 2TU, 2TV, 2TW, 2TX, 2TY, 2TZ, 2UA, 2UB, 2UC, 2UD, 2UE, 2UF, 2UG, 2UH, 2UI, 2UJ, 2UK, 2UL, 2UM, 2UN, 2UO, 2UP, 2UQ, 2UR, 2US, 2UT, 2UU, 2UV, 2UW, 2UX, 2UY, 2UZ, 2VA, 2VB, 2VC, 2VD, 2VE, 2VF, 2VG, 2VH, 2VI, 2VJ, 2VK, 2VL, 2VM, 2VN, 2VO, 2VP, 2VQ, 2VR, 2VS, 2VT, 2VU, 2VV, 2VW, 2VX, 2VY, 2VZ, 2WA, 2WB, 2WC, 2WD, 2WE, 2WF, 2WG, 2WH, 2WI, 2WJ, 2WK, 2WL, 2WM, 2WN, 2WO, 2WP, 2WQ, 2WR, 2WS, 2WT, 2WU, 2WV, 2WW, 2WX, 2WY, 2WZ, 2XA, 2XB, 2XC, 2XD, 2XE, 2XF, 2XG, 2XH, 2XI, 2XJ, 2XK, 2XL, 2XM, 2XN, 2XO, 2XP, 2XQ, 2XR, 2XS, 2XT, 2XU, 2XV, 2XW, 2XX, 2XY, 2XZ, 2YA, 2YB, 2YC, 2YD, 2YE, 2YF, 2YG, 2YH, 2YI, 2YJ, 2YK, 2YL, 2YM, 2YN, 2YO, 2YP, 2YQ, 2YR, 2YS, 2YT, 2YU, 2YV, 2YW, 2YX, 2YY, 2YZ, 2ZA, 2ZB, 2ZC, 2ZD, 2ZE, 2ZF, 2ZG, 2ZH, 2ZI, 2ZJ, 2ZK, 2ZL, 2ZM, 2ZN, 2ZO, 2ZP, 2ZQ, 2ZR, 2ZS, 2ZT, 2ZU, 2ZV, 2ZW, 2ZX, 2ZY, 2ZZ, 2AA, 2AB, 2AC, 2AD, 2AE, 2AF, 2AG, 2AH, 2AI, 2AJ, 2AK, 2AL, 2AM, 2AN, 2AO, 2AP, 2AQ, 2AR, 2AS, 2AT, 2AU, 2AV, 2AW, 2AX, 2AY, 2AZ, 2BA, 2BB, 2BC, 2BD, 2BE, 2BF, 2BG, 2BH, 2BI, 2BJ, 2BK, 2BL, 2BM, 2BN, 2BO, 2BP, 2BQ, 2BR, 2BS, 2BT, 2BU, 2BV, 2BW, 2BX, 2BY, 2BZ, 2CA, 2CB, 2CC, 2CD, 2CE, 2CF, 2CG, 2CH, 2CI, 2CJ, 2CK, 2CL, 2CM, 2CN, 2CO, 2CP, 2CQ, 2CR, 2CS, 2CT, 2CU, 2CV, 2CW, 2CX, 2CY, 2CZ, 2DA, 2DB, 2DC, 2DD, 2DE, 2DF, 2DG, 2DH, 2DI, 2DJ, 2DK, 2DL, 2DM, 2DN, 2DO, 2DP, 2DQ, 2DR, 2DS, 2DT, 2DU, 2DV, 2DW, 2DX, 2DY, 2DZ, 2EA, 2EB, 2EC, 2ED, 2EE, 2EF, 2EG, 2EH, 2EI, 2EJ, 2EK, 2EL, 2EM, 2EN, 2EO, 2EP, 2EQ, 2ER, 2ES, 2ET, 2EU, 2EV, 2EW, 2EX, 2EY, 2EZ, 2FA, 2FB, 2FC, 2FD, 2FE, 2FF, 2FG, 2FH, 2FI, 2FJ, 2FK, 2FL, 2FM, 2FN, 2FO, 2FP, 2FQ, 2FR, 2FS, 2FT, 2FU, 2FV, 2FW, 2FX, 2FY, 2FZ, 2GA, 2GB, 2GC, 2GD, 2GE, 2GF, 2GG, 2GH, 2GI, 2GJ, 2GK, 2GL, 2GM, 2GN, 2GO, 2GP, 2GQ, 2GR, 2GS, 2GT, 2GU, 2GV, 2GW, 2GX, 2GY, 2GZ, 2HA, 2HB, 2HC, 2HD, 2HE, 2HF, 2HG, 2HH, 2HI, 2HJ, 2HK, 2HL, 2HM, 2HN, 2HO, 2HP, 2HQ, 2HR, 2HS, 2HT, 2HU, 2HV, 2HW, 2HX, 2HY, 2HZ, 2IA, 2IB, 2IC, 2ID, 2IE, 2IF, 2IG, 2IH, 2II, 2IJ, 2IK, 2IL, 2IM, 2IN, 2IO, 2IP, 2IQ, 2IR, 2IS, 2IT, 2IU, 2IV, 2IW, 2IX, 2IY, 2IZ, 2JA, 2JB, 2JC, 2JD, 2JE, 2JF, 2JG, 2JH, 2JI, 2JJ, 2JK, 2JL, 2JM, 2JN, 2JO, 2JP, 2JQ, 2JR, 2JS, 2JT, 2JU, 2JV, 2JW, 2JX, 2JY, 2JZ, 2KA, 2KB, 2KC, 2KD, 2KE, 2KF, 2KG, 2KH, 2KI, 2KJ, 2KK, 2KL, 2KM, 2KN, 2KO, 2KP, 2KQ, 2KR, 2KS, 2KT, 2KU, 2KV, 2KW, 2KX, 2KY, 2KZ, 2LA, 2LB, 2LC, 2LD, 2LE, 2LF, 2LG, 2LH, 2LI, 2LJ, 2LK, 2LL, 2LM, 2LN, 2LO, 2LP, 2LQ, 2LR, 2LS, 2LT, 2LU, 2LV, 2LW, 2LX, 2LY, 2LZ, 2MA, 2MB, 2MC, 2MD, 2ME, 2MF, 2MG, 2MH, 2MI, 2MJ, 2MK, 2ML, 2MM, 2MN, 2MO, 2MP, 2MQ, 2MR, 2MS, 2MT, 2MU, 2MV, 2MW, 2MX, 2MY, 2MZ, 2NA, 2NB, 2NC, 2ND, 2NE, 2NF, 2NG, 2NH, 2NI, 2NJ, 2NK, 2NL, 2NM, 2NO, 2NP, 2NQ, 2NR, 2NS, 2NT, 2NU, 2NV, 2NW, 2NX, 2NY, 2NZ, 2OA, 2OB, 2OC, 2OD, 2OE, 2OF, 2OG, 2OH, 2OI, 2OJ, 2OK, 2OL, 2OM, 2ON, 2OO, 2OP, 2OQ, 2OR, 2OS, 2OT, 2OU, 2OV, 2OW, 2OX, 2OY, 2OZ, 2PA, 2PB, 2PC, 2PD, 2PE, 2PF, 2PG, 2PH, 2PI, 2PJ, 2PK, 2PL, 2PM, 2PN, 2PO, 2PP, 2PQ, 2PR, 2PS, 2PT, 2PU, 2PV, 2PW, 2PX, 2PY, 2PZ, 2QA, 2QB, 2QC, 2QD, 2QE, 2QF, 2QG, 2QH, 2QI, 2QJ, 2QK, 2QL, 2QM, 2QN, 2QO, 2QP, 2QQ, 2QR, 2QS, 2QT, 2QU, 2QV, 2QW, 2QX, 2QY, 2QZ, 2RA, 2RB, 2RC, 2RD, 2RE, 2RF, 2RG, 2RH, 2RI, 2RJ, 2RK, 2RL, 2RM, 2RN, 2RO, 2RP, 2RQ, 2RR, 2RS, 2RT, 2RU, 2RV, 2RW, 2RX, 2RY, 2RZ, 2SA, 2SB, 2SC, 2SD, 2SE, 2SF, 2SG, 2SH, 2SI, 2SJ, 2SK, 2SL, 2SM, 2SN, 2SO, 2SP, 2SQ, 2SR, 2SS, 2ST, 2SU, 2SV, 2SW, 2SX, 2SY, 2SZ, 2TA, 2TB, 2TC, 2TD, 2TE, 2TF, 2TG, 2TH, 2TI, 2TJ, 2TK, 2TL, 2TM, 2TN, 2TO, 2TP, 2TQ, 2TR, 2TS, 2TT, 2TU, 2TV, 2TW, 2TX, 2TY, 2TZ, 2UA, 2UB, 2UC, 2UD, 2UE, 2UF, 2UG, 2UH, 2UI, 2UJ, 2UK, 2UL, 2UM, 2UN, 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FEDERAL, VSL, and DIVISIONAL NOTES

FEDERAL

Fed. President: G. Glover, VK3AG.
 Fed. Secretary: G. M. Hull, VK3ZS, Box 2811W,
 G.P.O., Melbourne.
 QSL Bureau: R. E. Jones, VK3RJ, 23 Landale
 Street, Box 10, E.11, Vic.
 DX CC Manager: G. I. Morris, 50 Eighth
 Street, Parkdale, Vic.

NEW SOUTH WALES

President: Jim Corbin, VK3YC.
 Secretary: David H. Duff, VK3EO, Box 1734,
 G.P.O., Sydney.
 Meeting Night: Fourth Friday of each month at
 Science House, Corner Gloucester and Essex
 Sts., Sydney.
 Divisional Sub-Editor: Harry Powell, VK2AP,
 9 Russell Avenue, Wahroonga.
 QSL Bureau: J. H. Corbin, VK3YC, 73 Maloney
 St., Eastlake, Sydney (Inwards and Outwards).
 Zone Correspondents: North Coast and Table-
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 West Kempsey; Newcastle: Ron McD. Stuart,
 VK2ASJ, 48 Dufferin Street, Newcastle; South
 Coast and Lakes: Harry Hawkins, VK3YJ, 27 Com-
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 VK3WH, Camblawa, Forbes; South Coast and
 Southern: Roy Barron, VK3JO, 42 Pettit St.,
 Yass; Eastern Suburbs: Don Knock, VK2NO,
 42 Yanko Ave., Waverley; Northern Suburbs:
 Harry Powell, VK2AP, 9 Russell Avenue, Wahroonga;
 St. George: Chas. Coyle, VK3YK, 84
 Carlton Cres., Kogarah Bay.

FEDERAL

RETURN OF VK3UM

Members of the W.I.A. will be pleased to learn that the immediate past Federal Secretary, Bill Mitchell, VK3UM, is due to return to the States this month after three years abroad with his duties in the Military sphere. From what has been heard of Bill since he left our shores he has not had much time to relax, but he is expected to return although we hope he will come back with some interesting anecdotes.
 Whether or not the same fervent interest in the Federal Institute affairs as he had before he left Australia remains to be seen. However, it is hoped that he will apply to everything he tackles would be greatly appreciated back in the ranks of Federal Executive. What about it, Bill!

DELAY IN ISSUANCE OF A.O.C.P.

EXAMINATION RESULTS

In conformity with Federal Council's directive, the Federal Executive made representation to the Department with respect to the continued complaints from A.O.C.P. candidates that on some occasions unnecessary delay occurred in advising the candidate first of all of the result of his examination, and having passed, an allocation of his call sign after making application for it.

The Department explains that there is some delay in issuing the results of a December examination because, apart from the fact that the examination papers and other technical licences have to be corrected at the same time, the Christmas holidays intervene.

Even so, during the year when an A.O.C.P. examinations are held, other technical examinations are held at the same time. Current statistics show that the Department loses a considerable sum of money each year in the conduct of these examinations collectively unless an astronomical charge was made to the candidate it would not be possible for it to be otherwise. Under such conditions a handful of examiners have the task of correcting hundreds of papers and this takes time.

However, the Department has indicated that it will endeavour to speed up as much as possible the administrative results of A.O.C.P. candidates. In the meantime, Federal Executive asks members to assist by explaining the details of the amount of the "involved" money which they have sat for the examination and become impatient for the result.

INTERFERENCE IN THE 7 Mc. BAND

Representations have been made to Mr. R. G. Casey, M.P., Minister for External Affairs, and Hon. A. L. Anthony, M.H.R., Postmaster-General, with reference to transmitters of Radio Pakistan interfering with Amateur transmissions in that portion of the 7 Mc. band allocated by International agreement to the Amateur Service.

VICTORIA

President: G. Dennis, VK3TF.
 Secretary: C. Gibson, VK3FO.
 Administrative Secretary: Mrs. G. Pickering,
 Law Court Chambers, 191 Queen St., Melbourne.
 Meeting Night: Wednesday of each month
 at the Radio School, Melb. Technical College.
 Divisional Sub-Editor: K. E. Pincoff, VK3AFJ,
 14 Duncombe Ave., Ashburton, S.E.11.
 QSL Bureau: Inwards: Graham Roper, VK3ZB,
 22 Lucas St., South Caulfield, Vic.; Outwards
 —Frank O'Dwyer, VK3OF, 193 Thomas St.,
 Hampton, S.E.11.
 Zone Correspondents: Western: T. B. Rodda,
 VK3ATR, Box 254, Warracknabeal; South
 Western: W. Wines, 11 Redford St., Warrnam-
 bool, and E. Giddings, VK3ANQ, 9 Nelson St.,
 Warrnambool; North Eastern: A. D. Buchanan,
 VK3FD, "Booroodind", Wairing; Far North
 Western: M. Folie, VK3GZ, 101 Lemon
 Ave., Mildura; Eastern: Leo Dwyer, VK3SG,
 and John Battrick; North Western: C. Case,
 VK3ACE, Cumming Ave., Birchbush.

QUEENSLAND

President: J. A. Weddell, VK4PT.
 Secretary: V. P. Green, VK4VS, Box 638J,
 G.P.O., Brisbane.
 Meeting Night: First Friday in each month at
 the Royal Geographical Society Rooms, Ann
 Street.
 Divisional Sub-Editor: J. T. Hope, VK4XL,
 Royal Parade, St. John's Wood, Ashgrove.
 QSL Bureau: Jack Piles, VK4YJ, Vanda St.,
 Buranda, South Brisbane (Inwards and Out-
 wards).

Mr. Casey announced recently in the press that Pakistan had been granted £500,000 worth of radio equipment and also a number of transmitters to increase the range of Radio Pakistan.

While the W.I.A. agrees that it is not possible for the Australian Administration to do much about some of the "illegal" transmissions in the bands used by the Arabs, this was a glaring example of a country who on the one hand accepted an astronomical grant of radio equipment and on the other hand was infringing the internationally agreed frequency allocation table to which it was a signatory at Atlantic City in 1947.

Both Mr. Casey and Mr. Anthony have promised to take action in this matter and in this respect certain representations have already been made. Every country will be a little happier at least if it is possible to get rid of one "Commercial" from the bands.

FEDERAL QSL BUREAU

RAY JONES, VK3JL, MANAGER

Frank Bentley, VK3MJ, is again visiting Melbourne this year. Frank who is bringing a party of 125 YLs to compete at the South Street competitions, Ballarat, is scheduled to arrive on the 11th and will be located at the Victoria Coffee Palace during his week's stay in Melbourne. Apart from spending a day with the YLs and attending with VK3MJ, he hopes to meet other old Ham friends and make new ones.

The QSL Bureau for C8S is located at the following QSL: QSL Manager, A.A.E.M., Box 2060, Casablanca, Morocco.

Bill Storey, VK3ZG, who is a unique certificate has just arrived for Bill Storey, VK3ZG, ex-VK3IB, earned while operating the latter call sign. It is that of the West Gulf DX Club, U.S.A., and is bestowed on amateurs who work 25 of the club members. Bill is proud of the title of DX Ranger as shown on the ornate certificate which in Bill's case is only the second certificate to be issued.

Still more certificates. The Turin Section of the A.R.I. have received a diploma styled Diploma Torino (DT). It is available to all Amateurs who prove two way communication

SILENT KEY

It is with deep regret that we record the passing of:—

VK3AWK — William Loveland,
 died 28/7/53.

SOUTH AUSTRALIA

President: W. W. Parsons, VKSPS.
 Secretary: R. G. Harris, VK3RR, Box 1234K,
 G.P.O., Adelaide. Telephone: J 1151.
 Meeting Night: Second Friday of each month
 at 17 Waymouth St., Adelaide.
 Divisional Sub-Editor: W. W. Parsons, VKSPS,
 10 Victoria Avenue, Rose Park.
 QSL Bureau: GEOX, VK3CX, 8 Brook St.,
 West Mitcham, South Aus. (Inwards and Out-
 wards).

WESTERN AUSTRALIA

President: G. A. Moss, VK6GM.
 Secretary: J. Mead, VK6JL, Box N1002, G.P.O.
 Perth.
 Meeting Place: Perth Technical College Annex,
 Mounts Bay Road, Perth.
 Meeting Night: Third Tuesday of the month.
 Divisional Sub-Editor: W. E. Coxon, VK6AG.
 QSL Bureau: Jim Rumble, VK6RU, Box F19,
 Perth, West Aus. (Inwards and Outwards).

TASMANIA

President: L. E. Edwards, VK7LE.
 Secretary: F. J. Evans, VK7FJ, Box 371B,
 G.P.O., Hobart.
 Meeting Night: First Thursday of each month
 at the Photographic Society's Rooms, 163
 Launceston Street.
 Divisional Sub-Editor: L. E. Edwards, VK7LE.
 QSL Bureau: Inwards-T Allen, VK7AL, 6
 Launceston Street, Hobart; Outwards-Ray Al-
 vert, VK7RT, 310 Park St., Launceston, Tas-
 mania.
 Zone Correspondents: Northern: M. A. Chaplin,
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 Burnie, Tasmania.

with five stations in the province of Turin. C.w. or phone contacts will qualify, but must not be mixed. After the initial award, further contacts of three or more cards the recipient a sticker. Claims with cards must be made direct to the Secretary, Casella Postale 230, Torino, Italy. Cards will be returned with the certificate, and the holder is permitted to use the initials DT on his cards or correspondence. Write the name of a much speedier method of achieving DT's.

Eric, BERS189, has been performing a few weeks relief duty at NHIL. Seems to be more popular about the league football than the absence of home comforts.

Cards through the Federal Bureau reached an all time low during July. This is a fairly reliable barometer for the amount of cards on the DX bands during the previous few months.

A check travelled Ham is Van VP9AP, according to a QSL recently received by Austine VK3YL. The card was for a contact with VQ4CM. After leaving Kenya, Van became SU4CM for six months, then spent some time as HZ1VP. His current QTH is VP9AP, Officers' Mess R.A.F., Tarshane, Aden, Southern Arabia.

NEW SOUTH WALES

At the time of writing these notes, the Remembrance Day trophy is still a couple of weeks off, but by the time they get out in print the only reminder we need is to use in your log as soon as possible to your Divisional Council. We need every log we can get to help the State's score along. So how about it, chaps?

While on the general strain of contests and the log, we need a timely reminder to start getting gear ready for the National Field Day which is to be held some time in February-March next. It takes time to get gear together for each show, so don't leave it until the last minute.

The last general meeting of the Institute resulted in the re-appointment of members who heard a lecture by Angus Robertson on "E.C.I. Its Causes and Cure," which was very well received. The diploma styled motions of which members had received notice, were put. The first, regarding the Country Club, was rejected; and the second, regarding the re-admittance of ex-members, was passed. The Council now has the OK to go ahead and put the necessary machinery into motion so it can begin carrying out the terms of the motion. Judging by the discussion during the latter motion and the very pronounced "here-heres" around the hall after the chosen words by Angus Robertson, it is evident members don't wish to come along to meetings to argue controversies and matters. Radio is our hobby and it's radio we want.
 Incidentally, club members or visiting country members, have you been along to a Council



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held a licence for over a year now, has enough equipment to fill a three-ton truck and yet has never put out a signal. Doug JASE has returned to the Zone and it is hoped he will continue to keep the Zone in the DX picture. Leonatha is well represented these days with Ron, Jim, Rex and Gwen keeping up the good work.

Sale Sub-Branch

The monthly meeting of the local Sub-Branch was held at the home of Doug Hamner, of Sale. Doug has a complete theatre at his home and commanded the interest of all present till quite a late hour. An inspection of Doug's equipment was the first thing undertaken, and everybody agreed that the set-up left little to be desired. Doug then presented quite a long programme of films of a very varied nature. The President, Ossie 2AHK, thanked Doug for his hospitality and said that the Sub-Branch members were indeed fortunate to have such a genial host. In reply, Doug invited the boys to have another meeting at his place in the not to distant future.

The next meeting of the Sub-Branch will be held at the home of Graham 3QZ. A good roll up from down Leonatha and Morwell way is expected and a good time should certainly be had by all.

CENTRAL WESTERN ZONE

Please excuse gap in Zone notes, but cropping for two months in record wet season, combined with moving to new shack, has disorganised things on the Amateur Radio side. However, with the Convention moving closer, interest in the Zone is quickening. A recent Zone hook-up attendance included 3ARM, 3IB, 3AFO, 3AKW, 3DP, 3IZ, 3ATR. Newcomer to the Zone in the person of 3IZ from Maryborough was welcomed to his first Zone hook-up. 3IB also started the Zone by breaking out with phone on the Zone hook-up. Charlie is also nearly ready to go on the high frequencies, waiting on an 8 Mc. crystal. Indeed sorry to hear that 3NN is in hospital in Melbourne, hope that you are soon up and about again Herb. 3AFO has erected a new 80 mx antenna which seems to be doing a good job. Main discussion was the forthcoming Convention and it was decided to hold same at Stawell on Sunday, 27th September. There will be hidden tx hunts and a portable tx scramble. An invitation to all interested to attend. If accommodation is required contact T. B. Rodda, Box

254, Warracknabeal, as soon as possible. The gang is hoping to work it up into a good show with a few surprises, so see you from far and near at Stawell on 27th September. Listen to the 3WI broadcast for future information re the Convention.

— . . . —

QUEENSLAND

The attendance at the July meeting showed a slight improvement; opened at 8.15 p.m. with John 4FT in the chair and yours truly deputising for 4OB. It was good to see a few of the old faces again, amongst those we haven't seen for some time were Gordon 4GH and Henry 4HH. With a little more effort by those who have slackened, we should be soon having a good roll up to the monthly meeting. Aussie 4TN was to the fore giving all and sundry an identity instead of being just another face.

Lively discussion around a VK4 award took up quite a lot of time, and was eventually shelved for the time being owing to the difficulty in policing the award. My own observations are that it will be brought forward again in the near future.

It has been decided to go ahead with the trophy for our annual VK4 Intrastate Contest, to take the form of a shield with facilities for the yearly winners' names and call signs to be engraved. With this and other prizes, our contest should go ahead, and become very popular each year.

The QSL card position has been clarified to some extent by a compromise. That is QSLs to non-members will be forwarded, on the receipt of stamps to cover postage. Though myself, I think some charge should be made for this service. The attitude by one of our members with a bundle of cards was thought, by the meeting, to be in the poorest of spirits of Amateur Radio.

Whilst on the subject of QSL cards, I wonder how many members of the Institute in this Division honour their obligations by sending cards to those who request them. A survey of my log over the past two years shows a 25 per cent. cards received to those sent out to overseas Amateurs. This seems a poor average. Is this Division in their black books, or is the QSL card no longer the final courtesy of a QSO?

After the raffling of the call book the meeting adjourned for Vince to carry on with his pre-

vious lecture on a.s.c. By the copious notes taken by some, and the look of bewilderment on the faces of others, one got the impression it is all done with mirrors. By and large, the lecture was well received, and proved very interesting. It should win a few more converts to a.s.c. by those who like to experiment.

Thanks must go to Les 4NV for his donation of a crystal insert for the 4W1 microphone. Also to Allan Joy for the meter that has been wanted for some time for the piece of equipment in our technical library.

Tom Alky is prepared to issue material in the form of a correspondence course to those in the country who require material in the way of A.O.C.P. study. If there is anyone desirous of taking advantage of this offer, please contact the Secretary.

Jack 4JF informs me that northern QSL cards will be, in future, distributed by Eric 4IL, excepting those who have stamp credits at the Inward Bureau, who will receive their cards by post until the credit is exhausted, then reverting to the distribution by Eric.

I thought my Ipswich spy had gone and got himself shot, but he came to light at the last moment with nothing to report. Though I do know Jack 4SF has shifted inside, to dodge the cold weather and also to re-build the shack. Any new gear going into it Jack? Otherwise the boys up that way are still in hibernation.

Rockhampton came through here with a bit of short skip one day and I gleaned the information that conditions have them down also. I believe Eric 4EC grabbed himself a couple of newbies on 14 Mc. during the lunch hour. 4BW, 4W, 4BE, 4DI, and 4DO doing a little on 7 Mc. 3.5 Mc. has been workable at nights with a few good signals. 4W1 being heard on Sundays at 88. 4WT and 4CL are among the few active on 50 Mc. Bill 4WD has erected himself a vertical and can be heard on 14 Mc. How do you like the change from Brisbane?

The A.O.C.P. Class is going quite well with an average of nine attending, most of the students are tackling the study well, though the varying attendance shows the class down, owing to those who miss nights getting behind the lecturer.

The time of writing, sad to relate, Jim 4PR is in hospital dangerously ill after an accident with his motor scooter. I know this Division and its friends in other States wish him speedy recovery.

The next contest for us to worry about is the VK-ZL DX Contest. We would like to see



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The visitors' toast is always one of the most important, and this was entrusted to Skipper Schofield, 6WS. The President, when calling the meeting to order, told the gathering that Skipper had just had his 79th birthday, and extended his and members' congratulations. VK8 thinks that the toast was a very active, it is meant to be the full. Skipper is also on the Advisory Committee.

The organizing of the Dinner was in the hands of Jack 60R, assisted by two members of each body. As on every occasion of an Institute Dinner, the Superintendent of the home, come guest, on him fell the job of responding on behalf of the visitors. This was a pleasing duty for Mr. Gray, who had the honor to be in contact with all those described as visitors. The Chairman of the Advisory Committee, Jack Jewell, one who is active on the air, was also a guest.

During the past year this Committee has assumed quite a different atmosphere, and with the members and chairman all out to make the best effort both on behalf of the Department and the Amateur, Amateur Radio will be the better for it.

The July meeting was mainly occupied in listening to a lecture illustrated by diagrams of the functions of D.C.A. in its control of Civil Aviation with its aids to navigation and safety measures. This was given by Mr. G. R. Ellis, Amateur, Val Dook, 6KB. Particularly interesting were the later systems not yet introduced into Australia. A hearty vote of thanks concluded the talk.

Also on view by Mr. J. Long was a disposable receiver, ST100, in which the units, instead of being fitted between the dials of a barrel tuner, fitted on the outer shell, and were easily removable. It formed an excellent layout for any member who is determined to build real Ham version of a Service receiver.

The 40 metre scramble was held on Sunday, and from observations made during the morning it seems that owing to skipper's satisfaction in the contest, the winning was a few and whilst many were on the air, signals did not provide contact. The afternoon hour period produced a better result. It was not possible in future scrambles of this nature to include the 80 mc band as well as 40 mc. The 40 mc alone is better summer conditions. At the time of going to press the winner had not been announced. The trophy, one of the most important of the year, is now in the hands of Mr. White.

What is to come to someone on continuous work to gather all the activities of VK8 members, one would still be cheated out of some observations brought about by the contest. At the time of the 680 has erected a new aerial system for 80 mc, but apparently signals do not show such a great improvement on the old system. The writer found this fundamental to be true when he put up an elaborate six-wire cage (weight nearly half a ton) to house part of the guller in series with the remote roof. It is the same theory that works when a rx is reconstructed to look beautiful with all frills etc. It never works as well as it did when it occupied the whole of the shack bench.

There are two items awaiting attention on behalf of members; first is the request for the Divisional Notes with space provided for additions and alterations, neglecting duplicated alterations, etc. The present edition dated 1948. Another is an up to date Handbook

for the Guidance of Operators of Experimental Wireless Stations being desirable and having legal standing.

I should be noticed that the ZLs are enjoying the band 7000 to 7200 Kc. This difference to Australian allocation makes it increasingly difficult to provide future ZL Contest.

TASMANIA

The August meeting was held at the Club Rooms on Wednesday 8th and was fairly well attended. TOM was in the chair and after the usual preliminaries, two new Associates were accepted. The Superintendent of the station, Neville Cherry and Geoff Cook. Volunteers were called for to become members of a committee to organize the meeting. The meeting will operate at the Science Exhibition in January next. Members volunteering were TRX, T.L.J. TOM, and TRX. The work of the meeting is to help with building any equipment without actually being on the committee.

The building committee reported that the Club Room partitions will be forthcoming soon, they will be prefabricated and installed at an early date.

Highlight of the evening was the lecture which was given by Mr. G. R. Ellis, Officer in Charge of the Ionospheric Sounding Station at Hobart. Mr. Ellis told of the routine and experience of his work by pre-war time. His talk was most absorbing and informative. One particular experiment being conducted is an attempt to trace down the wave from somewhere unknown which take up to 15 seconds to return to earth. These have been observed on odd occasions since the early days of radio, but no one has been able to attempt to track them down although several theories have been put forward to explain them. Mr. Ellis has a transmitter which is set to transmit a second c.w. pulse every 20 seconds with a rx, c.r.o. and camera running continuously to record any echoes between pulses. This is being heard on approx. 9.82 Mc., and Mr. Ellis suggests that Amateurs may assist by tuning to the pulse and attempting to identify the wave. b.f.o. An article has been promised for "A.R." so watch for it if interested.

On arrival at the TAM residence the other night, the wind was blowing his hair and wearing the wicked power leak which was being plotted out the bands for some time, so we went chasing the source on the car rx and located it at a noise making car. The car was working all over the place—only comment from the owner was "you'll have to sell your receiver!" What was the noise and QRN things are so not hot at Bellevue.

Paid a surprise visit to the TMY ranch at Sandstone, where Mr. Alex T. is confining a bush pole for an aerial system for the Contest. Alan tells me he has two 75 footers cut ready in the bush waiting for the dry weather and 75 footers cut ready in the bush (eight or was it 18) wavelengths on each leg (80 mc top). He's also preparing to get on 44 Mc. with a beam on top of nearby hill. It will be nice to hear you again Alan.

Talking of poles, TGR had pole trouble in the recent gales, hope you get it upright again for the Contest. George Alex T. is confining to the blankets with a touch of the flu and go—result of sending with the foot Alex? Heard of a windmill 100 yards from the house, him in fact; nice signal Athol, we should hear more of it.

Welcome to VK7 Mr. R. Attwood, ex-VK2 and now TMC, and residing at Waddamans, what about turning on the taps a bit harder up there when TOM's voltages goes down? and TF moving to within 100 yards of the house, him Keith, he tells me he's going to rectify your radiations to run his rig. TGR giving you a lamp tube with 100 watt rating and changing his xtal filter for the Contest. TML coming on for the Contest if he can find the microphone. TBJ still working on his rig and not out no radiations—none from TBC either—well?

NORTH WESTERN ZONE

Much building is in progress here at the moment, most Hams getting their gear ready for the R.D. Contest which will all be over by the time these notes are printed. TSF has almost completed his 100 watt rig and is a good job complete with everything that opens and shuts. TAI is winding many coils for his new hand-made transformer rig and some more good job. TWA has nearly finished constructing his tower and will be shortly scraping the sky with a 20 mc beam with a 10 mc beam above it.

I hear that TKB has completed an electronic key to end all keys, which is capable of operating at 50 w.p.m. and incorporates very sensitive relays. Believe TMR has just completed a new rig with a 35T in the final and a pair of 820K in the detector, and has put out a very nice signal. The Sunday broadcast has come through a couple of times of

late and the other day it was very strong on 40 mc which is quite unusual at the moment. Thanks to the Hams we will hear it more often from now on.

NORTHERN ZONE

As these notes are written there is quite a bit of activity, locally, amongst participants in the R.D. Contest. V.F.O.s, antennae, etc. have been checked here for other members. TMR was heard trying out a new piece of commercially-built equipment and having a spot of trouble with it. TGR and I believe, TMR, have a similar piece of equipment on order—two very thoughtful Hams! TLZ's v.h.f. Ross Hull Memorial Certificate has arrived, and will be on its way to him. At a meeting a few others, congrats. Col.

TFM, a newcomer to Ham Radio, is heard on 40 mc almost nightly. TFF, apparently still busy with his work, has a v.h.f. cross-town phone—most unusual for him—he is generally scarce these days. TRK was on 40 mc and on the higher bands on c.w. At a meeting the other night we saw and heard one of TRB's efforts—a tape recorder, which gave a good account of itself. Associate with the southern gang, John Grace is at present with us for a few weeks and has been visiting a few shacks.

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Editor "A.R." Dear Sir,

I have read your excellent magazine since I arrived here a year ago, being interested in Amateur Radio. The writer found this comparative smallness of your magazine (no doubt due to paper restrictions) it compares admirably to many other magazines. I enjoy the Divisional Notes which seem to capture the spirit of Amateur Radio more than any other news item. I am a member of the Victorian Division and it has been my fortune (or misfortune) to read.

May I offer a word of appreciation to the editorial staff for the fact that in spite of the comparative smallness of your magazine, you have compiled these notes and to all the editorial staff for so little so interesting.

Here enclosed please find my contribution to the R.U. Conference of Region 1, 13th to 17th May, 1953, for what material it may offer.

Here's wishing you luck as you continue the good work.

—F. TURNHAM.

(Thank you Mr. Turnham for your comments. The report of the conference has been forwarded to Federal Executive for their perusal. —Editor.)

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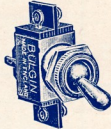
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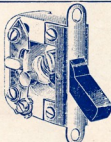
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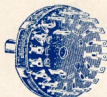
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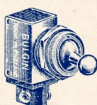
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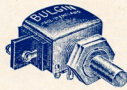
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